WHAT IS CLAIMED IS:

SUB D1

1. A method for manufacturing graphite powder, comprising the steps of:

~~graphitizing raw graphite by heating raw graphite to at least 2000°C, to produce graphitized raw graphite;~~

pulverizing ~~said graphitized~~ raw graphite, to produce pulverized graphite;

sieving said pulverized graphite for obtaining graphite powder having a maximum particle diameter of 100 μm;

heating said graphite powder as a heat treatment for transforming the crystalline structure to hexagonal structure; and

further heating said graphite powder, at a higher temperature than said heat treatment for transforming the crystalline structure, for eliminating impurities.

2. A method for manufacturing graphite powder as claimed in claim 1, wherein

the temperature of said heat treatment for transforming crystalline structure to hexagonal structure is at least ~~in a range from~~ 900°C ~~to 1100°C~~.

3. A method for manufacturing graphite powder as claimed in claim 1, wherein

the temperature of said heat treatment for eliminating impurities is at least ~~in a range from~~ 2700°C ~~to 2900°C~~.

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4. A method for manufacturing graphite powder as claimed in claim 1, wherein

the heat treatments are performed after said pulverizing process.

5. A method for manufacturing graphite powder, comprising the steps of:

~~graphitizing raw graphite by heating raw graphite at least 2000°C, to produce graphitized raw graphite;~~

pulverizing ~~said graphitized~~ raw graphite, to produce pulverized graphite;

sieving said pulverized graphite for obtaining graphite powder having a maximum particle diameter of 100 μm;

immersing said graphite powder into an acidic solution as an immersing treatment;

washing with water;

neutralizing; and

drying.

6. A method for manufacturing graphite powder as claimed in claim 5, wherein

said acidic solution contains at least one compound selected from a group consisting of sulfuric acid, nitric acid, perchloric acid, phosphoric acid, and fluoric acid.

7. A method for manufacturing graphite powder as claimed in any one of claims 1-5, wherein

said pulverizing is performed by a jet-mill.

8. A method for manufacturing graphite powder as claimed in any one of claims 1-6, wherein

said raw graphite has a diffraction angle for the maximum diffraction peak in a range from 26.2 degrees to 26.5 degrees in an X-ray diffraction pattern with the CuKα line.

9. A method for manufacturing graphite powder as claimed in claim 7, wherein

said raw graphite has a diffraction angle for the maximum diffraction peak in a range from 26.2 degrees to 26.5 degrees in an X-ray diffraction pattern with the CuKα line.

10. A ~~a~~ non-aqueous secondary battery comprising:

a positive electrode,

a negative electrode, and

electrolytic solution, which is charged or discharged by repeating a reaction of intercalating and deintercalating ions at said positive electrode and said negative electrode, respectively, wherein

said graphite powder composing said negative electrode has a particle size equal to or smaller than 100 μm, and

said negative electrode comprises graphite powder having a fraction of a rhombohedral structure equal to or less than 20% by weight.

11. A non-aqueous secondary battery as claimed in claim 10, wherein

said graphite powder has a fraction of a hexagonal structure equal to or more than 80% by weight.

12. A non-aqueous secondary battery comprising:

a positive electrode,

a negative electrode, and

electrolytic solution, which is charged or discharged by repeating a reaction of intercalating and deintercalating ions at said positive electrode and said negative electrode, respectively, wherein

said graphite powder composing said negative electrode has a particle size equal to or smaller than 100 μm, and

said negative electrode comprises graphite powder having a fraction of a rhombohedral structure equal to or less than 10% by weight.

13. A non-aqueous secondary battery as claimed in claim 12, wherein said graphite powder has a fraction of a hexagonal structure equal to or more than 90% by weight.

14. A non-aqueous secondary battery comprising:

a positive electrode,

a negative electrode, and

electrolytic solution, which is charged or discharged by repeating a reaction of intercalating and deintercalating ions at said positive electrode and said negative electrode, respectively, wherein

said negative electrode comprises graphite powder having a particle size equal to or smaller than 100 μm,

said graphite powder has both a hexagonal structure and a rhombohedral structure, and

said graphite powder has a fraction of the rhombohedral structure equal to or less than 20% by weight, and a fraction of the hexagonal structure equal to or more than 80% by weight.

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15. A non-aqueous secondary battery, made by a method comprising the steps of:

laminating graphite electrodes with a lithium group oxide; and

enclosing said graphite electrodes into a cell vessel with an electrolyte solution, wherein

said graphite electrodes are manufactured by the steps of:

granulating the graphite to graphite powder having a particle size equal to or smaller than 100 μm,

treating said graphite powder by heating at 900°C or higher, after said granulating, and

fabricating said graphite electrodes by subjecting the heat-treated graphite powder to pressing.

16. A non-aqueous secondary battery according to claim 15, wherein said treating said graphite powder by heating is performed so as to modify crystallinity of the graphite powder such that a fraction of the graphite powder having

rhombohedral structure is equal to or less than 20 % by weight.

17. A non-aqueous secondary battery according to claim 16, wherein, in said treating said graphite powder by heating, said crystallinity of the graphite powder is modified so that a fraction of the graphite powder having hexagonal structure is equal to or greater than 80% by weight.

18. A non-aqueous secondary battery according to claim 16, wherein crystallinity of the graphite powder is modified during the heat treatment so that a fraction of the graphite powder having rhombohedral structure is equal to or less than 10% by weight.

19. A non-aqueous secondary battery, made by a method comprising the steps of:

laminating graphite electrodes with a lithium group oxide; and

enclosing said graphite electrodes into a cell vessel with an electrolyte solution, wherein

said graphite electrodes are manufactured by the steps of:

granulating the graphite to graphite powder having a particle size equal to or smaller than 100μm,

immersing said graphite powder into an acidic solution as an immersing treatment, said acidic solution containing at least one compound selected from a group

consisting of sulfuric acid, nitric acid, perchloric acid, phosphoric acid and fluoric acid, and then washing said graphite powder with water, neutralizing, and drying said graphite powder, and

fabricating said graphite electrodes by subjecting the dried graphite powder to pressing.

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20. A method of manufacturing a lithium secondary battery, comprising the steps of:

laminating graphite electrodes with a lithium group oxide; and

enclosing said graphite electrodes into a cell vessel with an electrolyte solution, wherein

said graphite electrodes are manufactured by the steps of:

granulating the graphite to graphite powder having a particle size equal to or smaller than 100 μm,

treating said graphite powder by heating at 900°C or higher, after said granulating, and

fabricating said graphite electrodes by subjecting the heat-treated graphite powder to pressing.

21. A method of manufacturing a lithium secondary battery, comprising the steps of:

laminating graphite electrodes with a lithium group oxide; and

enclosing said graphite electrodes into a cell vessel with an electrolyte solution, wherein

said graphite electrodes are manufactured by the steps of:

granulating the graphite to graphite powder having a particle size equal to or smaller than 100 μm,

immersing said graphite powder into an acidic solution as an immersing treatment, washing said graphite powder, neutralizing said graphite powder, and drying said graphite powder, and

fabricating said graphite electrodes by subjecting the dried graphite powder to pressing.

22. A method of manufacturing a lithium secondary battery according to claim 21, wherein said acidic solution contains at least one compound selected from a group consisting of sulfuric acid, nitric acid, perchloric acid, phosphoric acid and fluoric acid.

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Add B1>

Add D5>